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# Agronomic and Fiber Properties of Primitive Race Stocks and Hybrids of Cotton

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## ABSTRACT

In Arizona, 11 agronomic and fiber properties were measured for 63 primitive cottons (Texas race stocks, *Gossypium hirsutum* L.). Agronomic properties only were measured for another 13 in Arizona (long days) and for 220 in Puerto Rico (short days). Data were also obtained for check cultivars and for certain race stock X cultivar  $F_1$  hybrids. Even in this relatively small sample from the pool of race stocks, genes are apparently available to improve every character measured except lint percentage and fiber length. In Arizona, hybrids showed favorable heterosis ( $F_1$  exceeded the check) or were comparable to the cultivar in 13 percent of all combinations, and in Puerto Rico, in 33 percent of all combinations.

**KEYWORDS:** *Gossypium hirsutum*, cotton, race stocks, photoperiodic, agronomic properties, fiber properties, heterosis.

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A copy of this publication is available upon request from the Western Cotton Research Laboratory, 4135 East Broadway Road, Phoenix, AZ 85040.

International Standard Serial Number (ISSN) 0913-3760

Science and Education Administration, Agricultural Reviews and Manuals,  
Western Series, No. 21, February 1981

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Published by Agricultural Research (Western Region), Science and Education  
Administration, U.S. Department of Agriculture, Oakland, Calif. 94612

# AGRONOMIC AND FIBER PROPERTIES OF PRIMITIVE RACE STOCKS AND HYBRIDS OF COTTON

By F. D. Wilson, R. L. Wilson, and B. W. George<sup>1</sup>

## INTRODUCTION

The collection of primitive race stocks (Texas race stocks) of cotton, *Gossypium hirsutum* L., constitutes a diverse assemblage of germplasm.<sup>2</sup> We have screened many of these race stocks<sup>3 4</sup> and race stock X cultivar hybrids<sup>5</sup> for resistance to pink bollworm, *Pectinophora gossypiella* (Sanders). We have also obtained ancillary data on agronomic and fiber properties.

The objectives of this paper are to make our agronomic and fiber property data available to cotton breeders, to indicate the range of variability for agronomic and fiber properties in the race stocks, and to discuss the incidence of favorable combinations in race stock X cultivar F<sub>1</sub> hybrids.

## MATERIALS AND METHODS

Seeds of Texas race stocks were obtained from the Texas Agricultural Experiment Station, College Station, and from the National Seed Storage Laboratory USDA, SEA-AR, Ft. Collins, Colo. Seeds of check cultivars were obtained through commercial channels. Nectariless upland cotton breeding stocks were

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<sup>2</sup>U.S. Department of Agriculture. The regional collection of *Gossypium* germplasm. U.S. Department of Agriculture, Agricultural Research Service, ARS-H-2, 105 p. 1974. [Series discontinued; Agricultural Research Service is now Science and Education Administration-Agricultural Research.]

<sup>3</sup>Wilson, R. L., and F. D. Wilson. A laboratory evaluation of primitive cotton (*Gossypium hirsutum* L.) races for pink bollworm resistance. U.S. Department of Agriculture, Agricultural Research Service, ARS-W-30, 9 p. 1975.

<sup>4</sup>Wilson, R. L., and F. D. Wilson. Field evaluation of cotton in Puerto Rico for pink bollworm resistance. U.S. Department of Agriculture, Science and Education Administration, Agricultural Research Results, ARR-W-2, 10 p. 1979.

<sup>5</sup>Wilson, F. D., and R. L. Wilson. Seed damage by pink bollworm to race stocks, cultivars, and hybrids of cotton. Crop Science 18:465-467. 1978.

obtained from W. R. Meredith, Jr., SEA-AR, Stoneville, Miss.

Plants were grown in the summers of 1974-78 at Phoenix and Tempe, Ariz., and in the winters of 1975-76 to 1978-79 at Isabela, Puerto Rico. In Arizona, seeds were either started in the greenhouse and seedlings were transplanted to the field, 46.5 cm apart, or seeds were drilled in the field and seedlings were hand-thinned to 30 cm apart. Plots varied from one to four rows wide (spaced 1 m apart) and were 9.1 m long. Seedlings were hand-thinned to 30 m apart. Standard cultural practices were followed at all three locations except that no insecticides were applied at Tempe or Isabela.

In Arizona, date of first flower was recorded and height was measured for each plant; these data were not obtained in Puerto Rico.

At Tempe and Isabela, when bolls began to open, plots were harvested sequentially every 2 weeks until all the seed cotton had been harvested. Number of bolls harvested was recorded. At Phoenix, 50-boll samples were harvested one time, and the number of bolls per plant was recorded. At all three locations, seed cotton samples were weighed and ginned, and lint and seed samples were weighed. Fiber properties of the lint samples from Arizona were determined at the SEA-AR Fiber Testing Laboratory, Phoenix.

The following data are presented: first flower, days after planting; plant height at maturity, in centimeters; number of bolls per plant; boll size (seed-cotton per boll, in grams); lint percentage (percentage of seed cotton that is lint); seed index (100-seed weight, in grams); 2.5- and 50-percent fiber span length, in millimeters;  $T_1$  fiber strength, in millinewtons per tex;  $E_1$  fiber elongation, in percent; micronaire (a measure of fiber fineness), in micronaire units.

All data are based on samples of 10 to 20 plants per replication from two to four replications. Data were analyzed, and a Least Significant Difference value was calculated to compare race stock and hybrid performance with performance of check cultivars.

## RESULTS AND DISCUSSION

Agronomic and fiber properties are presented for 63 race stocks grown in Arizona, 1974-78, and agronomic data only are presented for an additional 13 race stocks. Data are also presented for the check cultivars ('Deltapine 16' or 'Deltapine 61') and for a number of race stock X cultivar  $F_1$  hybrids (tables 1 to 14).

Agronomic data are presented for 220 race stocks, check cultivars, and  $F_1$  hybrids grown in Puerto Rico, 1975-76 to 1978-79 (tables 15 to 18).

In Arizona, the highest values in the race stocks varied from 100 percent of the check for fiber length to 215 percent of the check for plant height. The lowest values varied from 0.4 percent of the check for bolls per plant to 93.9

*[Text continues on p. 29.]*

Table 1.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1974-1A)

Cultivar, race stock, or hybrid	First flower	Plant height	Bolls per plant	Boll size	Lint	Fiber length		T <sub>1</sub> fiber strength	El fiber elonga- tion	Micro- naire
						2.5 percent	50 percent			
	Days	Centi- meters	Number	Grams	Per- cent	Millimeters	mN/tex	Per- cent		
Deltapine 16 (DPL-16; check)	84.9	98.7	33.3	5.2	37.0	29.0	14.5	209.9	8.1	4.92
Deltapine 16 nectariless(ne)	83.3	87.7	38.6	5.3	37.1	29.2	14.7	199.1	6.5	4.59
St 7A nectariless(ne)	81.6	98.9	34.6	5.6	37.7	26.9	14.0	187.4	5.7	5.02
Texas 21 (T-21)	77.3	104.1	15.4	6.7	32.3	26.2	13.0	200.1	6.0	4.00
T-31	80.5	147.3	8.1	4.9	31.0	24.4	13.0	211.9	7.0	4.52
T-34	93.2	130.9	11.5	6.0	33.7	22.1	12.4	188.4	8.2	5.66
T-35 (naked seed)	88.9	162.1	20.2	3.9	7.5	25.7	13.7	210.9	6.8	4.98
T-38	86.0	143.0	7.3	4.7	25.4	24.1	12.7	202.1	7.1	4.93
T-39	79.2	125.2	15.4	6.4	32.7	22.9	12.4	171.7	6.7	6.05
T-40	83.0	129.5	21.7	5.8	34.2	22.9	12.2	193.3	6.3	5.83
T-43	84.3	134.0	13.5	5.9	34.8	28.2	14.7	210.9	7.7	4.86
T-56	86.0	192.0	13.9	4.6	25.2	27.9	15.0	229.6	6.9	3.97
T-62	80.9	116.5	14.3	4.8	25.3	24.9	13.5	240.3	5.9	5.56
T-63	76.5	116.5	25.9	5.5	28.2	25.4	13.2	206.0	6.1	4.50
T-67	84.9	161.6	4.3	5.4	38.3	20.8	11.4	176.6	7.3	5.47
T-72	79.8	119.8	14.2	3.6	30.6	22.9	12.4	236.4	5.9	5.56
T-93	80.7	163.0	21.9	4.5	34.7	26.9	14.0	191.3	9.6	4.44
T-101	79.6	105.3	30.5	4.8	32.7	27.9	14.7	215.8	6.3	5.14
T-167	82.3	93.0	36.1	5.1	40.0	27.2	14.5	190.3	7.4	4.73
T-244	77.5	144.7	12.4	5.1	30.2	24.9	14.2	214.8	7.1	4.83
T-294	86.1	135.8	24.3	4.9	30.9	28.2	14.5	262.9	5.9	4.00
T-375	79.9	130.7	30.0	5.1	28.6	24.1	12.4	197.2	6.5	5.89
T-399	73.8	103.7	32.1	1.8	20.8	22.6	12.4	221.7	9.2	3.70
T-408 (naked seed)	87.4	198.9	15.1	1.7	12.6	20.8	11.7	235.4	7.8	3.57
T-409	77.7	133.8	37.5	2.8	29.1	22.1	11.9	215.8	8.3	4.17
T-616	87.1	171.5	2.9	5.4	29.6	24.9	13.0	194.2	6.1	4.67
T-675	---	213.7	0	---	---	---	---	---	---	---
T-705	77.3	196.3	3.7	4.2	31.4	20.1	11.2	176.6	6.4	5.44
T-709	75.4	110.0	27.6	6.5	35.1	28.7	14.2	188.4	7.1	4.52
T-63 X DPL-16	79.4	131.8	34.0	6.1	32.7	27.7	14.0	209.0	6.8	4.63
T-93 X DPL-16	79.5	121.5	39.2	4.9	36.1	28.4	15.0	208.0	8.3	4.66
T-101 X DPL-16	81.7	104.1	32.4	5.3	35.6	27.9	14.0	211.9	6.4	5.06
T-167 X DPL-16	77.3	84.4	36.6	5.3	39.1	28.2	14.2	200.1	8.6	4.66
T-375 X DPL-16	81.8	101.4	33.2	5.9	35.5	26.9	14.0	207.0	7.5	5.47
T-409 X DPL-16	75.4	118.8	42.8	4.3	34.6	26.4	14.2	211.9	8.0	4.34
T-21 X DPL-16 ne	76.9	121.4	32.9	5.9	36.1	28.4	14.7	220.7	6.9	4.27

Table 1.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1974-1A)--Continued

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant	Boll size Grams	Lint Per- cent	Fiber length		T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion	Micro- naire
						2.5 percent	50 percent			
			Number		Per- cent	Millimeters				
T-34 X DPL-16 ne	77.7	91.6	32.5	5.3	36.1	25.4	13.7	236.4	7.5	5.07
T-35 X DPL-16 ne	81.3	123.6	34.7	4.8	28.4	30.0	15.7	208.0	6.4	5.08
T-63 X DPL-16 ne	79.6	122.5	33.4	5.8	33.1	28.7	14.0	189.3	5.7	4.53
T-101 X DPL-16 ne	77.7	98.1	37.8	5.4	35.2	29.5	15.2	205.0	6.2	4.68
T-167 X DPL-16 ne	80.7	99.7	30.1	5.8	38.3	28.5	14.5	193.3	7.1	4.78
T-244 X DPL-16 ne	80.6	123.5	29.4	5.7	34.2	26.4	14.2	225.6	6.6	4.97
T-294 X DPL-16 ne	78.4	122.2	40.3	5.9	33.5	30.0	15.0	238.4	6.0	4.08
T-409 X DPL-16 ne	77.1	107.3	43.3	4.4	33.7	25.9	14.2	217.8	8.0	3.97
T-39 X St 7A ne	76.3	100.1	30.9	6.9	36.0	24.4	13.0	180.5	6.4	5.91
T-56 X St 7A ne	78.5	134.6	31.5	5.6	32.9	27.2	14.5	202.1	6.7	4.61
T-62 X St 7A ne	77.5	134.7	25.0	6.0	32.5	27.7	14.7	237.4	6.3	4.89
T-63 X St 7A ne	78.7	114.2	31.2	5.4	34.0	27.2	14.0	188.4	5.7	4.84
T-72 X St 7A ne	77.9	117.2	32.5	5.4	35.1	27.9	15.0	208.0	6.1	5.10
T-93 X St 7A ne	79.9	123.0	36.8	4.8	34.3	26.9	13.7	214.8	6.6	4.75
T-101 X St 7A ne	79.3	107.1	38.0	5.6	34.6	28.2	14.2	198.2	6.2	4.99
T-167 X St 7A ne	82.4	92.3	33.2	5.0	40.1	27.7	14.2	188.4	7.1	4.80
T-244 X St 7A ne	76.7	132.2	34.8	5.3	34.0	27.7	14.5	206.0	6.2	4.93
T-375 X St 7A ne	80.1	113.6	32.7	5.9	34.6	25.7	13.5	189.3	5.9	5.63
T-409 X St 7A ne	83.2	106.5	41.3	4.0	35.9	25.9	14.0	205.0	7.3	4.47
T-709 X St 7A ne	80.2	111.3	34.2	6.2	35.2	29.5	14.7	197.2	7.2	4.42
L.S.D. 0.05	6.1	24.4	8.7	.9	3.0	1.9	1.3	23.7	1.3	.33

Note: Dashes indicate no data.



Table 2.--Agronomic fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1974-1B)

Cultivar, race stock, or hybrid	First flower	Plant height	Bolls per plant	Boll size	Lint	Fiber length		T <sub>l</sub> fiber strength	E <sub>l</sub> fiber elonga- tion	Micro- naire
						2.5 percent	50 percent			
	Days	Centi- meters	Number	Grams	Per- cent	Millimeters	mm/tex	Per- cent		
Deltapine 16 (DPL-16; check)	79.9	92.1	33.4	5.2	38.2	29.7	15.5	211.9	8.4	4.8
Stoneville 7A (St 7A)	83.0	93.1	32.9	4.5	38.7	29.5	14.5	183.5	5.2	4.7
Texas 55 (T-55)	79.4	223.9	3.1	3.2	25.9	21.1	11.2	217.8	6.5	5.6
Texas 206 (T-206)	81.4	219.0	.7	3.3	28.3	20.8	11.7	209.9	7.6	4.7
Texas 703 (T-703)	82.6	225.4	1.6	2.5	25.1	16.8	9.4	---	---	---
T-55 X DPL-16	80.3	223.0	9.6	4.3	33.6	25.4	14.0	222.7	7.5	4.8
T-55 X St 7A	93.5	224.6	9.4	4.1	35.1	25.7	14.0	221.7	6.8	5.0
T-89 X DPL-16	88.2	215.8	0.7	5.2	32.0	26.2	14.5	213.9	7.7	3.6
T-89 X St 7A	93.5	221.1	0.7	3.9	34.5	25.1	13.0	214.8	6.3	3.4
T-164 X DPL-16	86.2	77.4	20.8	4.2	37.7	27.4	14.7	219.7	8.6	3.9
T-164 X St 7A	85.7	98.7	27.0	5.0	41.1	29.0	14.7	192.3	6.8	4.5
T-206 X DPL-16	79.7	197.3	16.5	5.5	31.9	26.4	14.5	207.0	7.8	4.6
T-206 X St 7A	85.2	205.1	22.1	5.6	31.7	25.9	14.0	212.9	6.2	4.6
T-301 X DPL-16	83.0	250.7	6.2	4.7	34.1	26.2	14.0	221.7	6.0	5.6
T-570 X DPL-16	82.3	249.4	3.9	3.8	26.1	26.2	14.2	246.2	7.6	3.7
T-570 X St 7A	83.4	252.6	3.6	3.4	28.3	26.4	14.0	227.6	6.4	3.7
T-596 X DPL-16	84.7	228.3	3.6	3.6	36.1	25.1	13.0	232.5	8.7	3.1
T-596 X St 7A	84.6	221.4	5.8	4.3	33.9	26.4	14.5	221.9	6.6	4.1
T-616 X DPL-16	79.1	249.7	8.4	4.1	32.5	25.9	14.0	217.8	9.6	3.3
T-616 X St 7A	85.8	141.6	22.7	6.9	34.6	30.5	15.2	204.0	6.1	4.5
T-639 X DPL-16	81.0	247.6	3.7	4.1	26.2	26.9	14.7	248.2	8.3	3.9
T-639 X St 7A	82.9	249.6	4.3	4.2	29.7	26.4	15.0	245.3	6.8	4.1
T-646 X DPL-16	93.8	234.2	1.3	3.6	31.3	27.4	13.5	212.9	8.5	3.2
T-646 X St 7A	92.9	241.6	1.3	3.8	33.1	28.7	14.5	217.8	7.5	3.6
T-688 X DPL-16	93.1	255.8	1.0	2.1	29.4	26.2	14.0	216.8	7.2	3.6
T-688 X St 7A	93.3	239.9	2.6	2.0	29.5	26.7	14.0	220.7	6.1	2.9
T-682 X DPL-16	90.7	255.8	1.4	2.7	31.7	27.2	14.5	214.8	8.3	3.5
T-682 X St 7A	84.2	250.4	6.5	3.9	32.7	27.7	13.7	209.0	6.9	4.0
T-703 X DPL-16	82.0	213.9	14.1	6.4	33.7	26.2	14.2	217.8	7.6	4.9
T-703 X St 7A	82.3	213.0	17.1	5.4	33.4	26.2	14.7	213.9	6.7	5.3
L.S.D. 0.05	4.9	24.8	8.8	1.1	2.9	2.1	1.5	16.6	1.3	.8

Note: Dashes indicate no data.

Table 3.--Agronomic and fiber properties in cultivars, race stocks, hybrids, Tempe, Ariz. (1974-2)

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Fiber length			T <sub>1</sub> fiber strength mN/tex	E <sub>1</sub> fiber elonga- tion cent	Micro- naire
						2.5 percent	50 percent	50 percent			
Deltapine 16 (DPL-16; check)	91.6	108.5	13.9	4.4	36.8	28.4	13.2	13.2	194.7	6.7	3.96
DPL-16 nectariless (ne)	91.6	111.2	15.6	4.9	37.6	28.7	13.0	13.0	178.1	5.7	3.58
Stoneville 7A (St 7A)	93.9	105.3	12.3	4.6	38.4	27.7	12.4	12.4	168.2	4.0	4.08
St 7A nectariless (ne)	91.3	104.1	11.9	4.8	36.1	26.9	12.4	12.4	174.9	4.7	3.76
Texas 21 (T-21)	89.5	123.4	9.2	5.5	33.7	26.2	12.4	12.4	181.8	4.7	3.34
T-31	85.5	124.8	9.9	4.0	29.4	25.4	11.9	11.9	184.2	5.4	3.51
T-34	98.7	125.7	5.1	4.4	33.7	23.1	12.4	12.4	194.7	6.0	4.81
T-35	92.5	131.1	8.4	4.1	15.5	26.7	13.5	13.5	197.5	4.5	3.99
T-36	92.8	101.2	7.9	5.4	32.5	23.6	11.4	11.4	177.6	4.4	4.68
T-38	93.4	131.7	8.9	4.1	27.8	26.7	12.2	12.2	193.3	5.2	3.77
T-39	90.9	113.0	9.3	4.7	34.5	23.4	11.4	11.4	170.7	4.4	4.91
T-40	93.0	131.4	7.7	4.7	34.1	22.9	11.9	11.9	179.0	3.9	5.30
T-43	92.1	126.6	7.1	5.3	36.0	26.4	12.7	12.7	185.2	5.3	4.41
T-56	97.6	145.1	6.6	3.7	25.0	27.7	13.2	13.2	198.7	4.8	3.56
T-62	89.8	107.7	9.8	4.1	29.0	26.7	13.2	13.2	210.9	4.9	4.40
T-63	92.6	114.7	9.6	3.8	29.5	24.6	11.9	11.9	186.4	4.4	3.76
T-64	95.3	129.3	7.8	3.9	31.0	24.4	11.7	11.7	178.8	4.3	3.93
T-65	97.7	139.0	1.0	---	---	---	---	---	---	---	---
T-67	98.0	121.0	5.7	3.4	36.3	---	---	---	---	---	---
T-72	87.9	110.5	9.7	3.6	32.2	24.6	12.4	12.4	199.9	4.2	4.64
T-93	91.6	137.2	11.9	3.9	32.9	27.9	13.7	13.7	182.5	6.8	3.66
T-101	91.4	118.3	11.1	4.5	33.4	27.7	13.7	13.7	195.7	5.0	4.51
T-167	91.1	122.6	13.1	4.4	39.0	27.2	13.0	13.0	189.6	6.6	3.78
T-203	97.2	136.5	6.9	3.6	29.6	---	---	---	---	---	---
T-239	91.6	135.7	7.8	3.3	28.7	25.9	13.0	13.0	188.8	5.1	3.52
T-244	89.7	131.7	7.5	4.1	31.5	25.1	12.7	12.7	193.1	5.1	3.52
T-294	92.9	142.9	13.5	3.8	32.6	29.2	14.0	14.0	219.1	4.9	3.74
T-375	90.3	126.1	13.0	4.4	28.4	24.4	11.9	11.9	175.9	4.8	4.52
T-399	82.8	112.3	15.0	2.2	22.6	24.4	12.4	12.4	220.5	6.9	3.23
T-408	96.1	212.3	4.6	1.3	17.9	---	---	---	---	---	---
T-409	87.5	132.1	12.4	2.3	28.4	23.9	11.7	11.7	182.3	5.7	3.13
T-616	100.2	118.5	5.3	3.4	30.2	25.4	11.4	11.4	178.8	4.7	4.34
T-624	100.4	144.7	1.2	---	---	---	---	---	---	---	---
T-705	90.8	172.7	5.8	3.7	30.3	23.4	11.9	11.9	187.4	4.7	4.34
T-709	89.4	100.6	10.5	5.1	33.9	27.9	12.2	12.2	169.0	5.3	3.09
T-712	90.9	109.7	5.7	6.6	34.7	25.1	12.4	12.4	163.1	6.8	4.20
T-34 X DPL-16 ne F <sub>1</sub>	88.2	109.6	16.5	4.7	37.3	---	---	---	---	---	---
T-101 X St 7A ne F <sub>1</sub>	87.1	109.9	15.9	4.6	34.6	27.7	13.5	13.5	191.8	4.8	4.19

T-167 X DPL-16 F <sub>1</sub>	88.9	103.7	16.3	4.1	37.1	27.4	13.0	195.7	7.0	3.49
T-167 X DPL-16 ne F <sub>1</sub>	88.0	108.2	15.9	4.5	37.8	28.2	13.2	184.9	5.3	3.68
T-167 X St 7A ne F <sub>1</sub>	87.1	115.0	15.7	4.1	37.6	26.9	13.0	193.6	6.4	3.50
T-375 X St 7A ne F <sub>1</sub>	85.4	123.5	18.9	4.4	28.9	---	---	---	---	---

L.S.D. 0.05

6.5 11.9 3.4 1.0 3.4 1.5 0.9 16.1 0.7 0.46

Note: Dashes indicate no data.

Table 4.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1975-1)

Cultivar, race stock, or hybrid	First <sup>1</sup> flower Days	Plant height Centi- meters	Bolls per plant	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length		T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion percent	Micro- naire
							2.5 percent	50 percent			
Deltapine 16 (DPL-16; check)	80.6	86.9	33.1	5.2	37.3	10.4	27.8	13.6	209.0	8.0	4.7
Stoneville 7A (St 7A)	78.9	85.4	30.9	4.4	37.5	10.0	27.9	13.2	198.2	5.7	4.6
Texas 39 (T-39)	81.5	108.7	14.9	6.4	33.2	13.1	23.2	12.6	182.0	6.2	5.9
T-53	84.0	167.8	63.0	3.7	23.7	12.3	24.1	12.7	227.1	5.9	4.9
T-65	83.0	165.4	4.2	3.5	23.4	9.4	20.4	10.8	215.8	5.7	5.5
T-72	81.2	127.7	25.3	3.8	30.7	10.0	23.5	12.7	232.5	5.2	5.5
T-78	110.0	187.7	0	---	---	---	---	---	---	---	---
T-101	81.1	105.2	31.3	4.9	32.4	10.2	27.8	14.5	221.2	6.1	4.9
T-181	110.0	191.4	0	---	---	---	---	---	---	---	---
T-207	110.0	179.0	0	---	---	---	---	---	---	---	---
T-220	105.2	188.9	0	---	---	---	---	---	---	---	---
T-232	110.0	187.5	7.0	4.0	27.5	9.2	17.8	10.2	---	---	---
T-316	110.0	203.3	0	---	---	---	---	---	---	---	---
T-39 X DPL-16	79.0	106.8	32.8	6.0	35.2	11.9	27.6	14.5	210.4	6.7	5.1
T-39 X St 7A	83.7	101.7	31.9	6.0	36.4	11.7	26.8	13.8	212.9	6.0	4.9
T-53 X DPL-16	88.4	143.0	59.4	5.4	30.8	12.2	28.1	14.5	226.6	6.5	5.1
T-53 X St 7A	84.9	151.9	35.6	5.4	31.5	11.4	28.6	15.0	222.7	5.6	5.1
T-65 X DPL-16	82.9	194.0	22.1	4.7	31.1	10.6	26.5	13.8	223.2	6.4	4.8
T-65 X St 7A	80.3	189.6	30.2	4.8	32.3	10.4	26.4	13.7	223.7	5.5	5.1
T-72 X DPL-16	93.4	101.4	48.3	5.6	33.4	11.8	27.4	15.0	226.6	6.4	5.1
T-72 X St 7A	83.6	112.0	43.3	5.4	35.4	10.9	27.7	14.5	215.8	5.6	5.3
T-78 X DPL-16	94.0	203.1	2.0	2.7	27.3	9.6	24.9	12.7	245.3	8.0	3.9
T-78 X St 7A	96.7	197.6	2.7	2.1	27.1	8.5	26.7	13.7	231.5	6.6	3.2
T-101 X DPL-16	83.6	90.9	35.6	5.0	36.6	10.0	27.9	14.0	212.9	6.9	4.9
T-101 X St 7A	81.3	85.4	35.2	4.6	35.5	10.4	27.8	13.6	198.2	5.7	4.8
T-181 X DPL-16	102.0	204.8	2.2	3.7	29.0	8.4	25.9	12.4	200.1	7.0	3.4
T-181 X St 7A	105.0	205.1	2.4	3.7	27.0	8.2	25.9	11.9	202.1	6.3	3.5

Table 4.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1975-1)--Continued

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Seed Grams	Fiber length		T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion	Micro- naire
							2.5 percent	50 percent			
T-207 X DPL-16	110.9	202.4	0	---	---	---	---	---	---	---	---
T-207 X St 7A	110.0	182.3	0	---	---	---	---	---	---	---	---
T-216 X DPL-16	89.0	181.2	2.3	3.5	32.7	9.2	24.8	11.9	199.6	7.0	3.8
T-216 X St 7A	92.8	174.0	.6	2.9	34.6	6.8	24.4	11.7	193.3	5.4	3.4
T-220 X DPL-16	89.4	202.0	4.8	4.5	29.6	10.3	25.7	13.6	211.9	7.7	3.8
T-220 X St 7A	96.2	207.0	24.5	5.7	27.8	11.1	27.2	14.0	222.7	7.4	4.1
T-232 X DPL-16	102.3	203.3	2.4	3.9	33.3	8.9	25.5	12.3	198.7	7.3	4.0
T-232 X St 7A	96.5	196.8	2.2	2.9	31.4	9.1	25.9	12.4	205.0	5.8	4.0
T-316 X DPL-16	110.0	218.7	0	---	---	---	---	---	---	---	---
T-316 X St 7A	110.0	221.5	0	---	---	---	---	---	---	---	---
L.S.D. 0.05	8.6	24.7	19.6	.9	1.9	1.1	1.7	1.1	16.1	.6	.8

110 days = nonflowering at day 200 (19 July).

Note: Dashes indicate no data.

Table 5.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Tempe, Ariz. (1975-3)

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Seed Grams	Fiber length		T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion	Micro- naire
							2.5 percent	50 percent			
Deltapine 16 (DPL-16; check)	79.3	76.6	18.0	4.3	39.1	10.7	28.2	14.7	208.8	5.3	4.3
Stoneville 7A (St 7A)	81.8	67.1	20.6	3.8	39.8	9.3	27.2	13.7	184.8	2.6	4.3
Texas 39 (T-39)	80.0	71.9	24.3	5.1	33.6	11.8	23.6	12.4	163.6	3.0	4.9
T-72	88.4	78.2	26.8	3.4	34.2	9.5	24.4	13.0	205.4	3.4	5.0
T-101	80.0	81.8	18.0	4.2	34.2	10.6	27.2	14.7	214.6	3.5	4.9
T-39 X DPL	81.1	83.2	17.2	5.1	37.7	12.5	25.9	14.0	202.9	4.5	4.9

T-39 X St 7A	79.8	84.5	21.7	4.9	38.0	11.7	25.7	13.7	191.1	3.0	5.0
T-53 X DPL-16	84.7	94.0	36.3	4.5	32.9	11.9	25.9	13.7	219.0	4.4	4.8
T-53 X St 7A	79.8	95.9	23.3	5.0	35.0	11.7	26.2	14.5	223.3	2.8	5.2
T-65 X DPL-16	81.5	131.6	21.6	4.1	33.4	10.0	24.9	13.5	209.5	3.8	4.9
T-65 X St 7A	81.8	131.9	20.0	4.7	34.4	11.9	25.1	13.5	216.0	3.2	5.2
T-72 X DPL-16	85.6	109.3	16.3	4.3	34.3	11.1	25.7	13.7	216.6	4.3	4.5
T-72 X St 7A	86.0	90.6	18.7	4.3	36.3	10.7	25.9	14.0	218.4	3.0	5.0
T-78 X DPL-16	88.9	157.8	10.9	2.7	26.7	9.6	24.9	13.7	232.9	6.4	3.6
T-78 X St 7A	86.0	154.8	11.2	2.3	26.6	9.5	24.4	13.5	237.0	5.5	3.5
T-101 X DPL-16	83.9	74.7	28.3	4.2	35.8	10.4	27.7	14.7	211.3	4.5	4.2
T-101 X St 7A	81.6	76.5	22.5	3.9	36.7	10.9	26.7	14.2	206.0	3.1	4.8
T-181 X DPL-16	101.2	176.4	4.0	4.1	29.1	8.5	24.6	13.0	193.8	5.7	3.9
T-181 X St 7A	100.0	176.8	3.9	4.0	30.2	8.8	24.9	13.0	198.2	4.5	4.5
T-207 X DPL-16	101.3	161.8	3.3	2.9	27.3	8.8	26.9	13.5	229.4	7.2	2.8
T-216 X DPL-16	90.7	147.7	7.5	3.5	34.2	9.1	25.4	13.7	202.7	5.1	3.7
T-216 X St 7A	92.8	146.7	6.2	3.8	30.3	8.6	24.9	13.2	192.5	4.0	4.0
T-232 X DPL-16	100.9	160.9	9.9	4.3	29.4	8.8	24.9	12.7	186.6	5.3	3.9
T-232 X St 7A	100.4	159.5	5.2	3.9	33.6	8.4	24.6	13.0	187.2	4.9	4.3

L.S.D. 0.05

.3

Table 6.--Agronomic and fiber properties in a cotton cultivar and 10 race stocks, Tempe, Ariz. (1975-4)

Cultivar, race stock, or hybrid	First flower	Plant height	Bolls per plant	Boll size	Lint	Seed index	Fiber length		T <sub>l</sub> fiber strength	E <sub>l</sub> fiber elonga- tion	Micro- naire
							2.5 percent	50 percent			
	Days	Centi- meters	Number	Grams	Per- cent	Grams	Millimeters	mN/tex	Per- cent		
Deltapine 16 (check)	84.0	96.8	27.1	4.5	36.0	10.7	29.1	14.0	196.7	8.3	3.8
Texas 21 (T-21)	85.3	98.1	21.5	5.9	32.0	12.7	25.0	12.1	173.1	5.8	3.6
T-31	84.2	116.0	12.1	3.8	29.5	12.0	25.0	11.6	181.7	6.8	3.8
T-43	85.3	115.1	21.0	4.1	33.6	11.2	26.9	13.8	184.9	7.7	4.2
T-55	90.9	176.0	1.4	2.1	23.6	10.1	18.7	10.2	---	---	5.6
T-93	84.7	123.2	19.7	5.8	34.7	13.8	26.9	13.5	188.6	6.2	4.4
T-101	86.9	102.5	28.5	5.0	33.1	11.3	28.1	14.7	197.2	6.1	4.7
T-167	86.9	100.9	37.5	4.5	38.6	10.0	27.6	13.5	188.6	8.2	3.9
T-206	97.6	181.5	3.6	2.7	29.4	8.6	---	---	---	---	---
T-703	94.4	173.6	2.3	3.2	25.5	9.0	17.8	9.4	---	---	4.1
T-712	83.3	105.6	15.0	6.4	34.9	12.5	25.1	11.9	160.4	7.9	4.2

Table 6.--Agronomic and fiber properties in a cotton cultivar and 10 race stocks, Tempe, Ariz. (1975-4)--Continued

Cultivar, race stock, or hybrid	First <sup>1</sup> flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length			T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion	Micro- naire
							2.5 percent	50 percent	50 percent			
L.S.D. 0.05	4.0	11.2	5.6	0.5	2.0	0.9	1.0	0.5		10.2	0.7	0.4

Note: Dashes indicate no data.

Table 7.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1976-1)

Cultivar, race stock, or hybrid	First <sup>1</sup> flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length			T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion	Micro- naire
							2.5 percent	50 percent	50 percent			
Deltapine 16 (DPL-16; check)	78.1	80.5	39.2	5.2	37.5	11.1	29.7	15.0		212.9	7.0	4.4
Stoneville 7A (St 7A)	77.5	83.4	50.1	4.4	37.4	10.8	29.0	14.7		209.8	5.1	4.7
Texas 25 (T-25)	116.0	216.3	0	---	---	---	---	---	---	---	---	---
T-103	118.0	195.9	0	---	---	---	---	---	---	---	---	---
T-169	90.3	192.8	.2	---	---	---	---	---	---	---	---	---
T-245	97.3	200.5	3.5	---	---	---	---	---	---	---	---	---
T-247	126.0	226.1	0	---	---	---	---	---	---	---	---	---
T-335	126.0	222.3	0	---	---	---	---	---	---	---	---	---
T-336	126.0	229.7	0	---	---	---	---	---	---	---	---	---
T-339	126.0	228.8	0	---	---	---	---	---	---	---	---	---
T-469	126.0	219.7	0	---	---	---	---	---	---	---	---	---
T-657	126.0	219.8	0	---	---	---	---	---	---	---	---	---
T-658	126.0	203.8	0	---	---	---	---	---	---	---	---	---
T-960	126.0	214.5	0	---	---	---	---	---	---	---	---	---
T-1177	126.0	217.8	0	---	---	---	---	---	---	---	---	---
T-1182	126.0	236.0	0	---	---	---	---	---	---	---	---	---
T-25 X DPL-16	91.4	228.6	1.6	3.2	31.5	8.3	27.2	14.0		238.4	6.1	3.2
T-25 X St 7A	83.9	222.4	.3	4.1	29.9	10.7	27.2	14.5		238.4	4.9	3.8
T-103 X DPL-16	83.9	225.4	2.6	3.9	34.7	9.2	26.7	14.2		224.6	6.0	3.9



T-103 X St 7A	85.5	211.3	2.6	3.4	35.4	8.2	26.2	13.7	211.9	6.0	3.6
T-245 X DPL-16	79.3	165.2	30.9	5.0	32.6	11.7	24.6	13.5	209.0	6.8	4.9
T-245 X St 7A	78.2	161.1	25.3	5.1	32.4	10.7	24.6	13.7	221.7	5.4	4.8
T-335 X DPL-16	126.0	247.1	0	---	---	---	---	---	---	---	---
T-335 X St 7A	126.0	242.8	0	---	---	---	---	---	---	---	---
T-336 X DPL-16	126.0	246.5	0	---	---	---	---	---	---	---	---
T-336 X St 7A	126.0	248.1	0	---	---	---	---	---	---	---	---
T-339 X DPL-16	126.0	252.1	0	---	---	---	---	---	---	---	---
T-339 X St 7A	126.0	244.6	0	---	---	---	---	---	---	---	---
T-960 X DPL-16	126.0	237.9	0	---	---	---	---	---	---	---	---
T-960 X St 7A	126.0	222.4	0	---	---	---	---	---	---	---	---
T-1177 X DPL-16	126.0	234.9	.3	---	---	---	---	---	---	---	---
T-1177 X St 7A	126.0	227.6	0	---	---	---	---	---	---	---	---
T-1182 X DPL-16	86.3	225.8	14.0	2.6	31.9	10.1	27.7	14.7	238.4	7.6	3.5
T-1182 X St 7A	94.7	227.0	9.8	1.8	34.8	10.7	28.2	15.2	244.3	7.0	3.7

L.S.D. 0.05

1.0

<sup>1</sup>126 days = nonflowering at day 200 (19 July).

Note: Dashes indicate no data.

Table 8.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1976-3)

Cultivar, race stock, or hybrid	First flower	Plant height	Bolls per plant	Boll size	Lint	Seed index	Fiber length		T <sub>l</sub> fiber strength	E <sub>l</sub> fiber elonga- tion	Micro- naire
							2.5	50			
							percent	percent			
	Days	Centi- meters	Number	Grams	Per- cent	Grams	Millimeters		mN/tex	Per- cent	
Deltapine 16 (DPL-16; check)	78.9	77.4	32.3	5.1	33.8	11.1	29.5	14.7	209.0	7.0	4.4
Stoneville 7A (St 7A)	79.8	83.0	38.9	4.6	32.1	11.0	29.7	14.7	198.2	5.2	4.4
Texas 31 (T-31)	76.2	139.5	18.5	4.9	25.7	12.4	24.6	12.7	201.1	6.3	3.9
T-40	84.1	99.6	29.9	4.7	27.6	11.4	22.6	12.4	189.3	5.0	5.9
T-55	77.2	179.9	6.7	2.4	13.6	10.0	18.5	9.9	---	---	5.5
T-203	103.5	131.2	6.0	4.0	25.4	8.5	---	---	---	---	---
T-705	82.5	179.9	13.5	4.1	25.4	10.6	20.6	11.9	216.8	5.1	5.7
T-711	89.9	197.6	2.3	---	---	12.9	---	---	---	---	---
DPL-16 X T-31	74.9	83.2	27.7	5.5	31.4	13.1	26.7	14.2	207.0	6.4	4.8
St 7A X T-31	75.5	82.8	31.1	5.5	30.3	12.3	27.7	15.0	222.7	5.4	4.6
DPL-16 X T-40	78.5	75.1	24.2	5.4	32.7	11.8	26.7	14.0	216.8	7.1	5.1
St 7A X T-40	75.6	73.5	32.8	5.1	33.0	11.9	25.9	13.7	209.9	4.6	5.4
DPL-16 X T-55	75.3	186.2	36.4	5.3	29.7	12.8	25.1	14.0	244.3	5.9	5.4

Table 8.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1976-3)--Continued

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length		T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion	Micro- naire
							2.5 percent	50 percent			
St 7A X T-55	79.0	179.1	38.0	4.5	28.5	11.7	25.7	13.7	236.4	4.9	5.5
DPL-16 X T-203	84.1	128.3	24.6	5.5	28.3	12.8	25.9	14.2	229.6	5.2	5.8
St 7A X T-203	80.1	123.4	31.1	5.4	29.1	12.7	25.9	14.2	226.6	4.3	5.6
St 7A X T-705	75.7	115.1	31.4	5.3	29.4	12.0	26.4	14.7	234.5	5.0	5.2
St 7A X T-711	77.3	159.8	42.6	5.6	29.8	12.2	25.7	14.5	240.3	5.2	5.2
L.S.D. 0.05	3.5	17.0	10.2	.9	3.7	1.1	1.3	.9	17.6	.5	.4

Note: Dashes indicate no data.

Table 9.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Tempe, Ariz. (1976-21)

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length		T <sub>1</sub> fiber strength mn/tex	E <sub>1</sub> fiber elonga- tion	Micro- naire
							2.5 percent	50 percent			
Deltapine 16 (DPL-16; check)	80.6	68.2	22.6	3.5	35.6	9.6	27.7	13.6	209.3	7.8	3.6
Stoneville 7A (St 7A)	77.7	67.5	25.7	2.8	36.1	9.4	28.5	13.6	195.4	5.3	3.5
Texas 31 (T-31)	77.9	88.5	25.2	3.2	32.1	11.0	24.5	12.2	198.9	6.7	3.7
T-40	82.4	84.2	21.2	3.7	31.6	10.1	21.0	11.2	184.6	5.2	4.8
T-55	79.6	129.1	11.8	1.5	23.1	8.8	17.9	9.2	---	---	5.0
T-203	90.2	119.5	10.6	4.1	17.7	11.9	21.1	10.6	---	---	4.5
DPL-16 X T-31	77.8	78.8	24.6	3.5	34.1	10.8	26.2	12.8	191.9	6.9	3.7
St 7A X T-31	78.1	75.1	27.7	3.8	34.7	10.7	26.2	13.1	192.5	5.5	3.7
DPL-16 X T-40	79.1	78.4	25.3	3.7	35.2	9.8	25.1	12.5	197.8	7.4	4.1
St 7A X T-40	79.0	69.6	25.4	4.0	34.9	10.4	26.2	13.3	198.0	5.0	4.4
DPL-16 X T-55	78.0	131.0	23.8	3.9	33.2	10.7	24.4	12.6	215.6	6.9	4.4
St 7A X T-55	79.0	126.1	25.3	2.8	32.9	9.5	23.9	12.6	230.7	5.6	4.6



DPL-16 X T-203	81.5	98.1	37.0	4.7	34.5	11.5	23.8	12.8	222.7	5.2	5.1
St 7A X T-203	80.8	100.3	38.6	3.2	34.8	10.8	23.9	12.2	211.1	4.5	4.8

L.S.D. 0.05

.4

Note: Dashes indicate no data.

Table 10.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1977-5)

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length		T <sub>1</sub> fiber strength mi/tex	E <sub>1</sub> fiber elonga- tion cent	Micro- naire
							2.5 percent	50 percent			
							Millimeters				
Deltapine 61 (DPL-61; check)	78.1	84.9	34.7	4.5	38.9	9.4	27.2	14.0	194.7	8.0	5.0
Stoneville 256 (St 256)	76.2	93.5	35.6	4.6	37.4	9.9	27.9	13.2	166.3	5.3	4.8
Texas 33 (T-33)	82.8	170.3	4.3	3.4	26.2	10.3	23.1	11.9	181.5	8.1	3.8
T-775	77.0	148.2	1.9	7.0	31.6	14.0	22.6	11.4	---	---	4.2
T-1125	77.3	141.0	29.0	3.3	24.8	11.1	23.6	12.7	204.0	7.1	4.6
DPL-61 x T-33	77.8	166.7	16.0	5.3	30.9	11.6	25.4	13.0	185.4	7.2	4.3
St 256 x T-33	81.5	167.6	18.4	5.3	32.3	11.3	26.7	13.5	188.8	7.0	4.4
DPL-61 x T-775	79.3	149.2	17.6	5.8	35.8	11.8	27.7	14.2	189.8	7.8	4.7
St 256 x T-775	75.5	154.0	21.8	5.9	36.2	13.2	27.4	13.2	183.4	5.8	4.6
DPL-61 x T-1125	75.8	108.3	27.9	4.5	32.5	10.8	27.2	14.2	194.2	6.6	4.9
St 256 x T-1125	75.4	102.2	32.0	4.6	33.8	10.1	27.2	13.7	183.4	6.1	4.8
DPL-61 x T-226	75.2	143.9	24.5	5.3	32.4	10.3	26.7	14.0	208.0	7.5	4.6
St 256 x T-226	73.4	145.4	29.9	5.5	32.4	11.5	26.9	14.2	203.6	6.7	4.7
L.S.D. 0.05	3.9	19.9	6.4	.8	4.0	2.0	1.5	.9	N.S.	1.0	.5

Note: Dashes indicate no data.

Table 11.--Agronomic and fiber properties in cotton cultivars, race stocks, and hybrids, Phoenix, Ariz. (1977-6)

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length		T <sub>1</sub> fiber strength mN/tex	E <sub>1</sub> fiber elonga- tion percent	Micro- naire
							2.5 percent	50 percent			
Deltapine 16 (DPL-16; check)	73.4	91.2	24.4	4.9	38.1	10.5	28.2	13.5	176.6	7.8	4.2
Stoneville 7A (St 7A)	75.6	94.0	29.7	4.6	35.9	11.0	29.0	14.5	189.8	6.4	4.6
Texas 25 (T-25)	100.5	192.9	0.0	---	---	---	---	---	---	---	---
T-245	86.8	178.0	1.8	3.9	24.1	10.1	21.1	10.9	---	---	5.1
T-1180	93.2	171.6	30.0	2.2	23.1	10.2	26.9	14.0	208.5	9.6	4.0
T-1182	127.0	219.0	0	---	---	---	---	---	---	---	---
T-25 X DPL-16	81.1	208.9	4.6	4.6	25.4	11.7	27.4	14.5	230.5	7.0	3.9
T-25 X St 7A	82.2	205.5	6.8	4.3	26.0	12.0	27.4	15.0	222.2	5.5	4.1
T-245 X DPL-16	75.6	161.1	16.5	5.6	30.4	11.0	24.9	13.5	200.1	7.9	5.2
T-245 X St 7A	73.2	150.5	20.5	5.4	30.3	10.9	25.4	13.5	193.7	7.2	5.3
T-1180 X DPL-16	83.2	176.6	38.8	2.1	23.3	11.0	29.0	15.7	233.0	10.0	3.8
T-1180 X St 7A	79.7	181.9	36.3	1.8	24.0	10.6	28.7	15.2	229.6	8.7	3.9
T-1182 X DPL-16	85.8	214.7	5.7	3.3	29.6	10.7	27.4	14.7	223.2	8.7	4.0
T-1182 X St 7A	82.3	215.3	5.3	2.9	30.4	10.4	28.2	15.0	227.1	7.7	3.5
L.S.D. 0.05	8.0	18.9	9.9	0.9	4.6	N.S.	1.3	0.8	21.2	1.2	0.4

Note: Dashes indicate no data.

Table 12.--Agronomic and fiber properties of a cotton cultivar, race stocks, and hybrids, Phoenix, Ariz. (1977-18)

Cultivar, race stock, or hybrid	First flower Days	Plant height Centi- meters	Bolls per plant Number	Boll size Grams	Lint Per- cent	Seed index Grams	Fiber length		T <sub>1</sub> fiber strength mN/tex	E <sub>1</sub> fiber elonga- tion percent	Micro- naire
							2.5 percent	50 percent			
Deltapine 61 (DPL-61; check)	75.2	79.9	25.7	4.8	37.3	9.5	26.7	13.5	199.8	7.7	4.9
Texas 17 (T-17)	84.2	107.7	1.9	2.8	24.7	10.0	23.4	11.9	---	---	4.4
T-55	75.9	153.2	2.0	2.4	21.5	9.2	17.0	9.4	---	---	5.2

T-228	92.8	134.7	0.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
T-635	90.8	154.2	1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
T-679	90.7	137.5	.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
DPL-61 X T-8	77.2	162.6	4.3	3.8	19.9	10.0	24.6	13.0	204.5	6.7	4.1	---	---	---	---	---	---	---	---
DPL-61 X T-17	69.9	151.6	11.3	3.7	30.9	9.7	24.9	13.2	198.7	6.6	4.1	---	---	---	---	---	---	---	---
DPL-61 X T-55	72.7	154.3	10.5	3.5	28.8	9.2	23.6	13.2	207.0	6.5	4.8	---	---	---	---	---	---	---	---
DPL-61 X T-113	81.9	167.4	3.3	3.2	29.2	8.9	25.7	13.5	203.6	8.0	3.6	---	---	---	---	---	---	---	---
DPL-61 X T-158	74.4	128.4	9.2	3.3	27.0	9.1	23.9	12.7	201.6	7.0	3.8	---	---	---	---	---	---	---	---
DPL-61 X T-228	74.3	147.8	7.8	4.2	27.7	8.7	26.2	13.7	206.5	7.0	4.0	---	---	---	---	---	---	---	---
DPL-61 X T-635	82.1	130.3	7.0	3.3	25.1	9.2	24.4	13.2	203.6	7.4	4.2	---	---	---	---	---	---	---	---
DPL-61 X T-679	78.9	155.8	9.8	3.1	24.6	9.4	24.4	13.7	214.3	8.0	4.2	---	---	---	---	---	---	---	---

L.S.D. 0.05

.7

N.S.

.9

1.8

.9

4.0

.9

2.1

33.4

8.4

Note: Dashes indicate no data.

Table 13.--Agronomic properties of cotton cultivars and race stocks,  
Phoenix and Tempe, Ariz., 1976

Cultivar or race stock	First flower	Plant height	Bolls per plant	Boll size	Lint	Seed index
	Days	Centi- meters	Number	Grams	Per- cent	Grams
<i>1976-2, Phoenix.</i>						
Deltapine 61 (check)	79.5	83.7	47.3	4.6	36.8	10.3
Stoneville 256	78.3	84.0	50.3	4.7	34.9	10.7
Texas 33 (T-33)	92.9	166.0	.4	---	---	---
T-72	79.0	110.4	26.7	3.8	28.7	10.7
T-79	N.F.	203.4	0	---	---	---
T-101	80.9	94.6	36.1	4.5	31.2	10.8
T-226	85.1	206.4	9.3	3.6	22.5	9.3
T-764	N.F.	191.3	0	---	---	---
T-775	82.0	144.0	1.7	---	---	---
T-1053	N.F.	224.1	0	---	---	---
T-1125	83.2	153.4	21.1	3.0	24.0	10.8
T-1158	N.F.	217.0	0	---	---	---
L.S.D. 0.05	4.7	22.2	16.4	.4	1.9	N.S.
<i>1976-4, Phoenix</i>						
Deltapine 61	79.6	75.2	35.7	4.7	38.1	10.1
Stoneville 256	80.5	82.2	35.7	4.8	36.1	11.1
T-31	76.1	141.3	22.5	4.4	29.3	12.2
T-55	80.4	191.7	2.4	2.2	10.9	9.9
T-167	82.6	83.9	29.1	3.8	38.5	9.9
L.S.D. 0.05	5.8	8.0	7.3	2.2	5.8	.5
<i>1976-24, Tempe</i>						
Deltapine 16	---	85.1	31.3	4.4	38.6	10.0
T-31	---	100.0	21.9	3.9	33.2	10.7
T-53	---	108.2	8.6	3.6	28.9	10.9
T-55	---	144.8	24.5	2.3	25.6	9.2
T-218	---	151.8	3.0	1.9	19.0	9.2
T-245	---	157.6	8.9	3.3	25.9	8.7
T-705	---	148.5	2.1	3.5	31.3	9.5
L.S.D. 0.05		7.9	3.6	.5	2.3	.8

Note: N.F. = nonflowering; dashes indicate no data.

Table 14.--Agronomic properties of cotton cultivars and race stocks,  
Phoenix and Tempe, Ariz., 1978

Cultivar or race stock	First flower	Plant height	Bolls per plant	Boll size	Lint	Seed index
	Days	Centi- meters	Number	Grams	Per- cent	Grams
<i>1978-8, Phoenix</i>						
24-8 nectariless (check).	59.5	84.3	38.3	4.6	36.0	10.6
Texas 17 (T-17)	83.5	133.6	0	---	---	---
T-31	60.0	147.6	21.9	4.3	27.0	13.8
T-39	63.5	114.2	15.9	5.8	32.0	14.3
T-55	81.5	172.5	1.1	---	---	---
T-56	70.5	143.7	17.5	3.9	23.2	13.5
T-58	97.0	186.4	2.1	---	---	---
T-63	58.5	134.5	28.8	4.2	26.2	14.2
T-65	78.5	174.8	7.7	---	---	---
T-101	57.5	94.5	43.7	4.6	30.3	10.8
T-167	57.5	93.0	38.7	4.6	37.2	9.9
T-245	94.5	159.4	12.7	---	---	---
T-622	97.5	165.6	0	---	---	---
T-703	86.0	188.4	5.8	---	---	---
T-705	66.5	191.7	12.2	---	---	---
T-1125	75.0	162.3	13.5	3.1	26.1	11.1
T-1180	99.0	172.3	29.7	---	---	---
L.S.D. 0.05	5.7	12.2	7.5	.6	1.6	1.2
<i>1978-13, Tempe</i>						
Deltapine 16 (check)	74.4	85.6	27.2	4.9	39.0	9.4
T 86 mut DPL-G 24	74.2	90.6	20.2	4.4	36.8	10.1
Texas 17 (T-17)	79.4	149.4	2.2	2.5	26.4	10.6
T-21	74.6	87.1	15.4	5.7	34.7	12.7
T-31	73.8	124.3	11.6	4.6	30.7	11.9
T-33	84.0	155.8	2.0	3.7	27.4	11.1
T-39	75.0	115.0	13.8	6.3	36.9	13.6
T-40	75.2	103.2	18.8	5.3	34.1	11.4
T-43	78.2	132.6	10.2	5.5	37.8	16.1
T-53	78.2	148.5	10.4	3.6	26.8	11.8
T-55 converted	68.6	145.1	23.6	2.7	30.8	10.7
T-56	80.8	133.7	14.4	3.4	27.4	11.9
T-58	79.2	165.8	4.8	3.8	30.6	10.7
T-62	76.4	134.8	5.2	4.1	28.5	13.4

Table 14.--Agronomic properties of cotton cultivars and race stocks,  
Phoenix and Tempe, Ariz., 1978--Continued

Cultivar or race stock	First flower	Plant height	Bolls per plant	Boll size	Lint	Seed index
	Days	Centi- meters	Number	Grams	Per- cent	Grams
1978-13, Tempe						
T-63	74.2	92.3	20.6	4.6	30.3	11.2
T-64	78.2	131.2	13.2	4.7	33.9	12.5
T-65	79.2	162.9	3.0	4.5	26.3	11.1
T-93	83.4	150.5	7.2	4.4	35.5	11.4
T-101	75.2	96.2	20.8	4.7	35.8	10.1
T-167	76.4	97.3	26.8	4.1	40.4	9.4
T-203 converted	76.6	136.8	15.0	3.1	27.6	11.5
T-218	85.0	146.4	2.4	1.8	16.7	9.6
T-226	75.8	165.9	3.6	4.2	28.5	8.7
T-243	79.6	168.8	2.8	4.1	31.5	10.0
T-245	78.4	150.1	6.6	4.2	31.6	9.5
T-570	84.2	135.9	2.0	2.9	33.5	9.4
T-622	83.2	148.3	8.4	3.9	33.1	10.5
T-705	77.6	147.9	9.0	4.1	32.9	10.7
T-1125	79.6	153.7	6.0	3.1	26.5	12.2
L.S.D. 0.05	2.3	15.1	4.0	.9	2.6	1.6

Note: Dashes indicate no data.

Table 15.--Agronomic properties of a cotton cultivar and race stocks,  
Isabela, Puerto Rico, 1975-76

Cultivar or race stock	Bolls per plant	Boll size	Lint	Seed index
	Number	Grams	Percent	Grams
Deltapine 16 (check)	9.8	3.9	36.9	9.9
Texas 2 (T-2)	2.2	2.4	25.2	10.5
T-3	3.2	4.3	26.8	12.0
T-8	7.1	3.7	28.1	11.2
T-10	8.3	2.7	25.3	9.5
T-15	1.9	.3	12.5	5.5

Table 15.--Agronomic properties of a cotton cultivar and race stocks,  
Isabela, Puerto Rico, 1975-76--Continued

Cultivar or race stock	Bolls per plant	Boll size	Lint	Seed index
	Number	Grams	Percent	Grams
T-16	3.8	5.6	23.0	12.7
T-17	6.4	4.0	28.8	12.3
T-20	1.9	6.3	31.3	13.9
T-25	3.1	5.1	30.4	11.9
T-30	1.6	.9	17.8	6.9
T-44	3.2	1.4	11.7	6.3
T-45	5.4	2.9	26.3	11.0
T-55	11.5	3.0	29.9	9.9
T-58	8.3	3.5	30.6	10.9
T-59	7.3	4.9	31.6	11.2
T-60	6.8	3.5	24.1	10.4
T-61	6.2	5.0	28.6	12.4
T-66	3.1	3.3	24.9	10.0
T-75	6.5	1.4	24.9	8.2
T-78	2.9	1.5	20.5	7.5
T-79	2.9	4.6	29.9	11.2
T-83	2.2	4.5	23.8	10.0
T-95	5.0	2.3	23.2	7.9
T-98	4.0	2.8	23.9	10.4
T-103	3.6	5.5	29.2	9.3
T-105	5.6	2.3	25.9	7.8
T-106	12.4	2.9	21.5	10.5
T-108	3.6	3.7	23.8	12.1
T-109	3.0	2.9	27.2	8.1
T-112	12.0	2.1	19.2	9.8
T-113	7.0	2.4	30.2	9.0
T-116	2.6	.8	22.9	7.3
T-119	3.3	2.1	28.0	8.8
T-120	6.6	3.3	19.7	11.4
T-122	4.0	3.4	25.0	10.1
T-140	5.4	2.7	23.5	9.7
T-143	5.6	1.4	30.6	8.1
T-151	7.1	2.5	21.7	8.6
T-153	3.1	3.6	24.1	10.7
T-154	11.5	2.7	27.3	9.7
T-158	13.9	2.8	22.8	10.0
T-161	9.8	3.6	26.9	8.5
T-169	5.8	3.8	27.3	12.5
T-170	5.6	4.0	22.5	10.2
T-177	4.0	4.0	24.8	11.3
T-182	2.8	3.5	26.3	9.6
T-183	2.4	3.8	27.1	11.1

Table 15.--Agronomic properties of a cotton cultivar and race stocks,  
Isabela, Puerto Rico, 1975-76--Continued

Cultivar or race stock	Bolls per plant	Boll size	Lint	Seed index
	Number	Grams	Percent	Grams
T-195	2.5	3.3	23.3	9.7
T-196	2.4	2.0	26.4	7.7
T-199	12.2	3.1	23.2	11.2
T-200	9.1	3.8	24.7	11.0
T-201	3.1	3.9	24.3	12.1
T-204	4.4	3.3	25.5	12.1
T-205	6.0	3.6	25.2	11.0
T-208	3.9	1.8	29.6	6.8
T-209	8.4	2.6	23.8	9.2
T-212	9.4	.4	30.8	5.4
T-215	2.9	3.3	29.2	7.4
T-216	2.4	3.3	27.3	9.1
T-217	9.8	2.6	26.9	9.9
T-218	4.1	3.1	22.4	11.0
T-219	3.3	3.4	24.6	10.4
T-221	13.8	3.1	20.8	9.8
T-222	4.5	4.3	27.5	11.6
T-223	2.0	1.9	21.9	7.9
T-224	4.9	3.3	24.6	14.3
T-225	1.6	2.3	25.4	10.8
T-228	10.8	2.5	25.9	9.6
T-232	7.3	.5	29.2	3.8
T-236	3.9	3.2	23.5	11.4
T-240	7.0	2.0	21.7	9.8
T-243	2.8	3.1	26.4	11.6
T-245	2.8	3.4	26.7	11.0
T-247	3.1	1.6	19.1	7.2
T-250	2.7	1.9	23.3	9.0
T-258	8.3	.4	25.4	6.7
T-304	1.9	.2	12.6	8.3
T-328	3.9	1.9	23.7	7.1
T-330	4.0	4.6	29.5	12.8
T-333	8.5	3.0	22.7	9.5
T-335	5.5	4.4	28.7	10.7
T-344	2.2	.2	18.0	4.1
T-460	3.6	.6	15.4	6.2
T-461	2.9	.3	14.2	4.4
T-466	6.3	.7	18.6	8.6
T-488	2.5	1.9	22.1	7.2
T-495	11.2	.4	20.9	5.6
T-570	2.6	5.9	29.3	15.2
T-595	1.4	3.6	26.4	10.2



Table 15.--Agronomic properties of a cotton cultivar and race stocks,  
Isabela, Puerto Rico, 1975-76--Continued

Cultivar or race stock	Bolls per plant	Boll size	Lint	Seed index
	Number	Grams	Percent	Grams
T-596	4.3	2.8	25.4	9.5
T-610	5.5	3.7	24.4	11.1
T-611	5.5	3.3	29.7	12.0
T-612	10.1	4.0	28.4	10.1
T-616	6.2	5.2	15.7	12.8
T-619	3.1	7.0	32.6	12.9
T-620	15.3	3.4	22.0	9.7
T-623	2.5	5.7	17.8	12.8
T-625	5.6	3.0	23.6	10.9
T-634	9.7	3.1	26.9	10.8
T-635	11.8	2.5	26.4	9.5
T-636	7.6	2.6	25.0	10.3
T-641	5.2	5.4	31.4	12.9
T-644	9.2	4.4	31.9	11.9
T-645	2.7	4.3	29.2	8.8
T-646	4.4	5.0	29.0	10.9
T-665	10.6	.9	21.7	4.9
T-679	10.5	2.3	22.4	9.6
T-682	10.8	3.5	31.2	11.3
T-684	5.0	3.4	23.6	12.2
T-702	8.2	3.5	28.2	12.1
T-703	12.0	3.8	27.2	11.6
T-705	3.4	3.2	26.3	11.9
T-711	1.9	3.4	25.5	11.2
T-717	2.4	4.8	24.0	9.7
T-738	5.9	4.3	27.4	11.7
T-743	7.2	3.0	24.0	11.5
T-757	6.8	.2	15.2	4.2
L.S.D. 0.05	2.8	1.3	5.0	2.2

Table 16.--*Agronomic properties of a cotton cultivar and race stocks, Isabela, Puerto Rico, 1976-77*

Cultivar or race stock	Bolls per plant	Boll size	Lint
	<i>Number</i>	<i>Grams</i>	<i>Percent</i>
Deltapine 16 (check)	24.3	3.6	36.3
Texas 4 (T-4)	11.2	2.4	21.7
T-6	7.8	4.1	25.6
T-7	10.2	2.9	24.2
T-8	14.5	3.9	25.1
T-21	11.7	5.2	31.7
T-22	9.5	2.2	33.5
T-31	15.4	5.1	29.3
T-33	13.9	3.6	26.7
T-34	15.6	4.3	33.9
T-35	12.9	5.8	32.5
T-36	12.6	4.9	30.3
T-37	5.6	4.7	23.1
T-39	10.7	5.9	31.0
T-40	23.3	4.7	33.9
T-43	8.9	5.1	29.7
T-46	3.2	9.9	26.2
T-48	3.9	4.5	26.8
T-52	9.7	4.0	24.6
T-55	22.6	3.6	28.0
T-56	12.3	3.1	23.8
T-57	9.0	3.9	23.5
T-58	14.3	3.8	28.5
T-62	10.1	5.2	25.7
T-63	16.9	4.3	28.3
T-64	14.8	4.0	26.8
T-65	18.2	4.5	25.7
T-70	18.0	2.4	22.1
T-72	18.6	4.4	32.3
T-73	15.1	3.8	28.0
T-87	10.9	5.4	22.4
T-90	7.9	5.3	26.1
T-93	18.8	3.7	30.7
T-96	24.5	3.3	23.1
T-99	11.0	4.1	26.8
T-101	14.8	4.1	32.5
T-102	12.0	2.3	28.0
T-104	16.6	4.2	24.0
T-107	12.5	2.8	27.5
T-113	11.9	2.5	27.2
T-121	6.4	3.2	27.5
T-123	13.5	4.4	30.3

Table 16.--Agronomic properties of a cotton cultivar and race stocks,  
Isabela, Puerto Rico, 1976-77--Continued

Cultivar or race stock	Bolls per plant	Boll size	Lint
	<i>Number</i>	<i>Grams</i>	<i>Percent</i>
T-157	15.0	4.3	26.9
T-158	21.9	3.1	21.3
T-160	19.4	2.6	17.8
T-167	21.0	3.6	36.7
T-168	17.5	2.2	24.7
T-170	9.5	3.3	22.4
T-173	10.2	2.4	24.5
T-175	16.6	3.6	24.8
T-176	8.7	3.7	24.8
T-178	13.7	2.3	21.7
T-197	7.2	5.9	26.7
T-198	15.5	3.4	22.2
T-202	10.3	2.8	24.6
T-203	11.4	4.6	26.9
T-214	7.7	2.5	19.3
T-226	16.3	2.9	25.5
T-227	14.5	2.6	27.0
T-228	22.6	2.7	24.9
T-233	8.2	2.6	29.7
T-234	6.2	2.9	27.4
T-239	19.6	4.1	27.9
T-241	20.1	3.8	22.7
T-242	14.9	3.3	28.2
T-243	14.6	3.9	29.6
T-294	19.5	3.4	34.6
T-330	7.2	5.5	27.3
T-336	1.6	.3	16.8
T-375	12.2	4.6	20.4
T-497	10.1	1.6	25.1
T-503	13.1	3.5	27.1
T-610	11.5	3.6	24.9
T-635	21.1	3.2	25.5
T-668	15.2	1.7	29.1
T-679	18.3	2.6	21.2
T-763	6.3	3.1	28.8
T-775	4.2	3.9	28.9
T-1053	15.5	2.2	26.7
T-1125	9.4	2.7	30.2
T-1158	2.0	1.6	30.4
T-1180	7.9	.8	23.1
L.S.D. 0.05	8.4	1.1	4.1

Table 17.--Agronomic characters of cultivars, race stocks, and hybrids,  
Isabela, Puerto Rico, 1977-78

Cultivar, race stock or hybrid	Bolls per plant	Boll size	Lint	Seed index
	Number	Grams	Percent	Grams
<i>GW 77-29</i>				
Deltapine 61 (DPL-61; check)	18.1	3.4	36.7	8.7
Stoneville 256 (St 256)	11.7	3.4	38.4	8.4
Texas 33 (T-33)	15.3	4.4	27.8	11.5
T-226	15.2	3.7	26.6	9.9
T-775	2.8	10.0	28.8	16.8
T-1125	17.7	2.8	25.5	9.6
St 256 X T-33	19.4	4.8	34.4	10.1
DPL-61 X T-226	17.5	4.6	31.6	10.1
St 256 X T-226	16.7	5.3	32.7	10.2
DPL-61 X T-775	16.1	5.9	33.4	11.2
St 256 X T-775	14.9	6.0	35.8	11.0
DPL-61 X T-1125	27.4	3.9	31.4	9.2
St 256 X T-1125	20.7	4.1	30.9	9.7
L.S.D. 0.05	5.1	1.9	2.8	1.3
<i>GW 77-30</i>				
Deltapine 16 (DPL-16; check)	18.0	4.4	37.3	9.2
Stoneville 7A (St 7A)	15.1	2.9	35.5	9.9
Texas 25 (T-25)	5.8	---	---	9.5
T-245	11.9	3.8	26.2	9.4
T-1180	44.8	1.4	26.5	7.6
T-1182	2.9	---	---	6.2
T-25 X DPL-16	24.6	5.3	27.9	11.3
T-25 X St 7A	15.6	6.5	27.1	10.8
T-245 X DPL-16	17.0	5.0	32.1	9.2
T-245 X St 7A	19.8	4.6	32.7	9.3
T-1180 X DPL-16	49.6	1.4	31.5	7.9
T-1180 X St 7A	40.0	2.0	30.9	8.1
T-1182 X DPL-16	24.2	2.6	29.0	11.1
T-1182 X St 7A	18.0	3.1	31.3	10.4
L.S.D. 0.05	11.9	1.4	3.6	2.1

Table 17.--Agronomic characters of cultivars, race stocks, and hybrids,  
Isabela, Puerto Rico, 1977-78--Continued

Cultivar, race stock or hybrid	Bolls per plant	Boll size	Lint	Seed index
	Number	Grams	Percent	Grams
<i>GW 77-31</i>				
Deltapine 16 (DPL-16; check)	16.3	4.6	37.8	9.8
Stoneville 7A (St 7A)	11.3	3.8	38.3	8.4
T-336	6.6	---	---	6.5
T-339	4.8	---	---	7.0
T-960	8.4	2.9	---	5.0
T-1177	5.7	---	---	6.5
DPL-16 X T-336	53.1	2.8	31.2	10.5
St 7A X T-336	34.7	3.0	30.2	10.0
DPL-16 X T-339	47.2	2.6	29.8	9.9
St 7A X T-339	45.5	2.3	30.4	9.6
DPL-16 X T-960	37.7	2.0	30.6	9.0
St 7A X T-960	30.7	3.3	30.4	9.4
DPL-16 X T-1177	29.9	2.0	30.6	9.2
St 7A X T-1177	32.7	2.3	29.3	9.0
L.S.D. 0.05	13.7	.9	3.1	2.2
<i>GW 77-32</i>				
Deltapine 61 (DPL-61; check)	24.5	3.6	37.8	8.6
Texas 8 (T-8)	10.3	4.1	23.1	10.3
T-17	12.0	4.3	29.7	10.3
T-55	16.2	2.9	29.0	9.0
T-113	20.9	2.8	28.4	8.6
T-158	16.3	2.5	22.0	8.8
T-228	14.3	2.6	20.6	9.3
T-330	7.9	4.1	26.4	10.6
T-679	16.4	2.8	19.5	8.8
DPL-61 X T-8	18.0	5.4	32.3	10.5
DPL-61 T-17	24.8	4.3	34.6	10.8
DPL-61 X T-55	23.5	3.7	34.8	9.7
DPL-61 X T-113	28.4	3.8	35.0	8.5
DPL-61 X T-158	22.2	4.0	30.9	9.4
DPL-61 X T-228	24.3	4.4	32.3	9.3
DPL-61 X T-330	25.3	4.8	33.8	9.8
DPL-61 X T-635	23.0	3.5	30.8	9.0
DPL-61 X T-679	22.8	4.2	30.0	9.5
L.S.D. 0.05	8.0	1.0	2.9	.8

Table 17.--Agronomic characters of cultivars, race stocks, and hybrids,  
Isabela, Puerto Rico, 1977-78--Continued

Cultivar, race stock or hybrid	Bolls per plant	Boll size	Lint	Seed index
	<i>Numbers</i>	<i>Grams</i>	<i>Percent</i>	<i>Grams</i>
<i>GW 77-33</i>				
Deltapine 61 (DPL-61; check)	16.0	4.3	38.8	8.8
Stoneville 256 (St 256)	11.8	3.9	39.1	8.2
Texas 102 (T-102)	8.0	2.9	24.9	7.8
T-127	3.0	---	---	7.3
T-142	1.9	---	---	7.3
T-185	2.9	---	---	5.8
T-378	2.7	3.4	---	5.5
T-668	11.4	2.0	20.5	5.7
T-763	3.4	2.6	---	7.5
T-764	4.2	2.4	---	7.9
T-1053	15.9	2.6	22.5	8.3
T-1158	4.8	---	---	8.5
DPL-61 X T-127	34.3	3.0	26.8	9.5
St 256 X T-127	29.7	3.3	29.7	9.0
DPL-61 X T-142	31.5	5.0	33.1	9.1
St 256 X T-142	18.0	4.6	34.0	9.4
DPL-61 X T-185	30.1	4.3	34.1	10.4
St 256 X T-185	24.2	3.3	33.6	9.6
DPL-61 X T-764	25.8	4.3	32.7	9.9
St 256 X T-764	26.7	3.1	33.6	9.7
DPL-61 X T-1053	28.6	4.1	35.0	8.6
St 256 X T-1053	26.5	4.3	34.2	8.8
DPL-61 X T-1158	20.8	4.6	34.5	9.2
St 256 X T-1158	25.4	4.0	32.6	8.9
DPL-61 X T-102	20.6	4.1	34.4	7.9
DPL-61 X T-265	44.1	3.1	31.2	9.4
DPL-61 X T-273	50.4	2.3	29.7	8.2
DPL-61 X T-293	26.7	3.1	27.5	9.8
DPL-61 X T-302	37.2	2.4	31.3	8.7
DPL-61 X T-303	33.9	2.5	30.7	8.9
DPL-61 X T-306	34.4	2.6	30.2	9.6
DPL-61 X T-331	32.8	2.9	31.1	9.1
DPL-61 X T-342	41.0	3.4	31.6	9.3
DPL-61 X T-378	22.5	4.1	32.3	8.4
DPL-61 X T-668	41.1	3.2	33.6	7.8
DPL-61 X T-763	23.4	5.0	32.0	9.3
St 256 X T-273	42.5	2.2	28.0	8.1
L.S.D. 0.05	9.3	.9	3.2	1.5

Table 17.--Agronomic characters of cultivars, race stocks, and hybrids,  
Isabela, Puerto Rico, 1977-78--Continued

Cultivar, race stock or hybrid	Bolls per plant	Boll size	Lint	Seed index
	<i>Numbers</i>	<i>Grams</i>	<i>Percent</i>	<i>Grams</i>
<i>GW 77-34-35</i>				
Deltapine 16 (check)	15.8	4.3	39.0	8.8
Texas 24 (T-24)	12.3	5.1	28.8	10.3
T-41	8.6	8.6	31.5	13.3
T-50	7.2	7.8	37.7	12.3
T-55	19.0	3.5	29.8	7.9
T-64	17.8	3.9	32.5	9.6
T-67	9.9	5.2	37.4	10.7
T-86	9.6	5.5	31.7	10.2
T-91	26.2	2.5	22.7	8.2
T-97	10.4	2.4	26.8	8.4
T-99	14.1	3.7	27.0	8.6
T-101	16.6	4.0	33.3	7.8
T-139	9.3	1.2	24.4	7.2
T-181	10.2	3.6	29.8	7.8
T-214	16.7	3.8	23.7	6.9
T-228	16.9	3.1	25.5	7.9
T-235	13.0	3.7	26.6	9.8
T-244	16.2	3.5	32.7	9.9
T-377	10.3	2.1	29.5	6.3
T-489	20.1	1.8	20.5	6.0
T-497	23.6	1.7	24.1	5.3
T-500	11.9	1.6	27.5	9.6
T-570	16.0	3.1	22.1	10.6
T-931	13.3	3.4	36.4	8.9
T-932	13.5	4.7	37.8	9.9
T-933	21.7	5.5	37.6	10.5
T-960	5.2	---	---	6.7
T-1053	17.1	2.2	23.5	7.7
T-1180	19.2	.9	22.0	5.7
L.S.D. 0.05	8.5	1.1	3.3	1.1

Note: Dashes indicate no data.

Table 18. --Agronomic properties in a cotton cultivar and race stocks,  
Isabela, Puerto Rico, 1978-79

Cultivar or race stock	Bolls per plant	Boll size	Lint	Seed index
	Numbers	Grams	Percent	Grams
Deltapine 16 (check)	23.4	2.4	39.2	10.3
Texas 31 (T-31)	16.5	2.8	35.0	12.5
T-48	11.0	5.2	35.0	14.8
T-53	20.2	2.1	31.3	12.8
T-55	18.8	1.8	33.7	10.9
T-58	22.6	3.0	36.2	11.1
T-65	14.4	2.8	34.3	11.6
T-99	16.6	2.4	34.0	9.5
T-158	19.3	1.7	26.5	9.3
T-160	24.1	2.7	23.4	11.7
T-168	19.7	2.6	32.1	11.2
T-170	16.0	2.5	26.7	10.1
T-176	12.0	2.5	29.7	11.3
T-181	6.3	1.1	24.5	5.3
T-198	17.5	2.1	26.0	12.6
T-207	4.0	---	---	7.6
T-228	22.4	1.7	28.4	9.8
T-245	10.5	1.7	32.2	11.3
T-251	25.4	1.4	26.6	8.3
T-377	11.9	1.2	30.5	7.2
T-503	17.5	2.4	32.7	11.9
T-610	17.5	2.3	29.6	10.3
T-612	17.9	2.7	29.6	12.7
T-620	23.0	1.8	28.3	10.0
T-622	29.4	1.6	40.4	9.2
T-635	22.0	2.3	29.3	9.6
T-636	34.8	1.9	30.6	9.4
T-639	12.0	1.7	20.7	12.1
T-657	7.3	1.3	29.7	5.1
T-658	12.4	1.2	31.1	5.5
T-679	15.7	1.9	26.9	9.9
T-937	33.4	1.1	32.8	6.8
T-1177	7.1	1.5	27.2	9.1
T-1180	51.9	.5	29.9	6.7
T-1182	7.5	.4	21.8	7.0
L.S.D. 0.05	10.4	.8	3.8	2.1

Note: Dashes indicate no data.



percent for plant height (table 19). In Puerto Rico, the highest values in the race stocks, ranged from 101 percent of the race stocks for lint percentage to 275 percent for boll size. The lowest values ranged from 5.1 percent for boll size to 38.4 percent for seed index (table 20).

Table 19.--Comparison of agronomic and fiber properties in "day-neutral" race stocks and check cultivars of cotton, Phoenix and Tempe, Ariz., 1974-78

Character	Race stock	Highest/Latest	Lowest/Earliest
-----Percent of check-----			
First flower, days	T-1180	127.0	
	T-399		88.7
Plant height	T-703	215.0	
	T-39		93.9
Bolls per plant	T-167	116.7	
	T-228		.4
Boll size	T-775	155.6	
	T-408		32.7
Lint percentage	T-167	104.4	
	T-35		20.3
Seed index	T-775	148.9	
	T-203		76.6
Fiber span length, 2.5%	T-294	100.0	
	T-703		58.8
Fiber strength, T <sub>1</sub>	T-294	119.1	
	T-39		82.5
Fiber elongation, E <sub>1</sub>	T-1180	123.1	
	T-21		71.4
Micronaire	T-40	129.3	
	T-408		71.5

Table 20.--Comparison of agronomic and fiber properties in race stocks and check cultivars of cotton, Isabela, Puerto Rico, 1975-79

Character	Race stock	Highest	Lowest
-----Percent of check-----			
Bolls per plant	T-1180	248.9	
	T-336		6.6
Boll size	T-46	275.0	
	T-304, T-344, T-757		5.1
Lint percentage	T-167	101.1	
	T-44		31.7
Seed index	T-775	193.1	
	T-232		38.4

We selected three groups of race stocks to emphasize the variability in productivity (for example, bolls per plant) in long and short days (table 21). The first group included five race stocks that produced at least 90 percent as many bolls as the check cultivar in Arizona. These five produced 50 to 152 percent as many bolls in Puerto Rico. The second group included 14 race stocks that flowered in Arizona but produced less than 10 percent as many bolls as the check in Arizona. These 14 race stocks produced 16 to 102 percent as many bolls in Puerto Rico. The third group included 17 race stocks that produced no bolls in Arizona. This group produced 17 to 78 percent as many bolls in Puerto Rico.

The variability in flowering and fruiting response could form the basis for an exhaustive study of photoperiodism in cotton and thus constitute a valuable adjunct to earlier studies of the inheritance of this character.<sup>6</sup>

In the race stock X cultivar  $F_1$  hybrids grown in Arizona, heterotic combinations in a favorable direction ( $F_1$  exceeded the check cultivar) varied from none for fiber length to 24 percent for fiber strength among the eight characters measured. Among three characters, in which the favorable state was represented by the performance of the cultivar, percentages ranged from 26 percent for plant height to 55 percent for seed index (table 22). In Puerto Rico, favorable hybrid combinations ranged from none for lint percentage to 75 percent for seed index (table 23).

Thus, significant genetic variability exists even in the limited sample of the germplasm of *G. hirsutum* that we tested. Genes are available that could change every character measured in a favorable direction except lint percentage and fiber length.

In Arizona, one race stock, T-167, was comparable in overall agronomic and fiber properties to the check cultivars. A few others approached the cultivars, such as T-40, T-93, T-101, and T-294. In Puerto Rico, T-167 and T-933 were comparable to the cultivars, and the other four race stocks mentioned above approached the cultivars in overall performance.

## ACKNOWLEDGMENT

The authors thank the following individuals for assistance rendered: E. G. Stone, Jose Santiago, and Francisco Vasquez for maintaining field plots in Puerto Rico; C. W. Fitzgibbons and J. S. Byrd for maintaining field plots in Phoenix and Tempe, respectively; K. S. Samson, B. R. Stapp, Jayne Szaro, and Darcy Traylor for technical assistance; C. V. Feaster for processing fiber samples; L. N. Bass and P. A. Fryxell for supplying seeds of Texas race stocks.

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<sup>6</sup>Kohel, R. J., T. R. Richmond, and C. F. Lewis. Genetics of flowering response in cotton. VI. Flowering behavior of *Gossypium hirsutum* L. and *G. barbadense* L. hybrids. Crop Science 14:696-699. 1974.

Table 21.--*Bolls per plant in race stocks grown in long days (Arizona)  
and short days (Puerto Rico)*

Race Stock <sup>1</sup>	Bolls per plant			
	Arizona		Puerto Rico	
	<i>Number</i>	<i>Percent of check</i>	<i>Number</i>	<i>Percent of check</i>
T-72	26.1	102.0	18.6	76.5
T-101	27.5	92.4	14.8	60.9
T-167	28.9	116.7	21.0	86.4
T-375	21.5	91.1	12.2	50.2
T-1180	29.9	95.2	31.0	151.9
T-17	1.4	4.5	9.2	50.7
T-33	3.4	6.1	14.6	68.9
T-58	2.1	5.5	15.1	76.0
T-65	2.0	9.7	18.2	74.9
T-169	.2	.5	5.8	49.2
T-218	2.7	9.2	4.1	34.7
T-228	.1	3.9	10.8	91.5
T-245	2.7	8.3	8.4	47.4
T-570	2.0	7.4	9.3	67.4
T-635	1.0	3.9	18.3	92.3
T-679	.2	.8	15.2	72.5
T-703	2.0	6.4	12.0	101.7
T-711	2.3	7.1	1.9	16.1
T-775	1.8	4.4	3.5	16.5
T-25	0	0	4.5	29.9
T-78	0	0	2.9	24.6
T-79	0	0	2.9	24.6
T-181	0	0	6.3	26.9
T-207	0	0	4.0	17.1
T-247	0	0	3.1	26.3
T-335	0	0	5.5	46.6
T-336	0	0	4.1	20.2
T-339	0	0	4.8	29.4
T-657	0	0	7.3	31.2
T-658	0	0	12.4	53.0
T-764	0	0	4.2	26.3
T-960	0	0	8.4	51.5
T-1053	0	0	15.7	77.9
T-1158	0	0	3.4	16.9
T-1177	0	0	6.4	32.2
T-1182	0	0	5.2	25.1

<sup>1</sup>The first five race stocks had > 90 percent as many bolls as the check cultivar in Arizona; the next 14 had < 10 percent as many, and the remaining 17 produced no bolls in Arizona.

Table 22.--Comparison of hybrid with cultivar performance, Phoenix and Tempe, Ariz., 1974 to 1978

Character	Favorable state	Total hybrid combinations	Favorable hybrid combinations	
	(Compared with cultivar)	Number	Number	Percent
First flower	Earlier	161	19	11.8
Plant height	Same	161	41	25.5
Bolls per plant	More	161	11	6.8
Boll size	Larger	151	10	6.6
Lint percentage	Higher	145	1	.7
Seed index	Same	89	49	55.1
2.5% Fiber length	Longer	145	0	0
50% Fiber length	--do--	145	8	5.5
T <sub>1</sub> Fiber strength	Higher	145	35	24.1
E <sub>1</sub> Fiber elongation	--do--	145	1	.7
Micronaire	Same	145	75	51.7

Table 23.--Comparison of hybrid with cultivar performance, Isabela, Puerto Rico

Character	Favorable state	Total hybrid combinations	Favorable hybrid combinations	
	(Compared with cultivar)	Number	Number	Percent
Bolls per plant	More	57	28	49.1
Boll size	Larger	57	5	8.8
Lint percentage	Higher	57	0	0
Seed index	Same	57	43	75.4



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